

Application No. 10/612,649
Reply dated: June 6, 2006
Reply to Non-Final Office Action of March 23, 2006

Listing of Claims:

1. (Previously Presented) A reflective-transmissive type liquid crystal display device, comprising:

a first substrate, including:

a thin film transistor disposed on a first transparent substrate;

an organic insulation layer disposed on the first transparent substrate to insulate the thin film transistor, the organic insulation layer having a contact hole for exposing an output terminal of the thin film transistor;

a pixel electrode having a transparent electrode connected to the output terminal of the thin film transistor through the contact hole disposed on the organic insulation layer, and a reflective electrode disposed on a first region of the transparent electrode, a second region of the transparent electrode being exposed without being covered by the reflective electrode, the second region including a first boundary and a second boundary, wherein the first boundary is a boundary between the first and second regions and the second boundary is a remaining boundary of the second region except for the first boundary; and

an orientation film coated on an upper surface of the pixel electrode and having an orientation groove rubbed in a first direction toward the second boundary, the orientation groove preventing impurity from being stacked at the first boundary of the transparent electrode;

a second substrate, including:

a color filter disposed on a second transparent substrate in opposition to the pixel electrode; and

a common electrode disposed on an upper surface of the color filter and facing the pixel electrode; and

a liquid crystal interposed between the first and second substrates.

2. (Previously Presented) The reflective-transmissive type liquid crystal display device as claimed in claim 1, wherein the first boundary includes at least two straight lines in a layout of the

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pixel electrode.

3. (Previously presented) The reflective-transmissive type liquid crystal display device as claimed in claim 2, wherein the first direction is parallel to one of the straight lines.

4. (Previously Presented) The reflective-transmissive type liquid crystal display device as claimed in claim 2, wherein the reflective electrode includes a sidewall making contact with the first boundary, and the sidewall is inclined to prevent the impurity from being stacked at the first boundary.

5. (Original) The reflective-transmissive type liquid crystal display device as claimed in claim 1, wherein the second region exposes two edges of the first region of the transparent electrode, and the two edges are connected to each other.

6. (Previously Presented) The reflective-transmissive type liquid crystal display device as claimed in claim 5, wherein the reflective electrode includes a sidewall making contact with the first boundary, and the sidewall is inclined to prevent the impurity from being stacked at the first boundary.

7. (Previously Presented) The reflective-transmissive type liquid crystal display device as claimed in claim 5, wherein the first boundary and the first region each have an L-shaped configuration.

8. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 1, wherein the second region partially exposes one edge of the transparent electrode.

9. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 8, wherein the reflective electrode includes a sidewall making contact with the boundary of the first and second regions, and the sidewall is inclined to prevent the impurity from being stacked at the boundary.

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10. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 8, wherein the boundary between the first and second regions, and the first region each include a U-shaped configuration.

11. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 1, wherein the second region is formed on an inside of the first region, and wherein the reflective electrode includes a sidewall adjacent to the boundary of the first and second regions, the sidewall being inclined to prevent the impurity from being stacked at the boundary.

12. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 11, wherein the transparent electrode includes a plurality of the second regions, and wherein the second regions include a circular shape or a rectangular shape.

13. (Withdrawn) The reflective-transmissive type liquid crystal display device as claimed in claim 11, wherein the color filter comprises a first tone at the first region corresponding to the reflective electrode and a second tone at the second region of the transparent electrode being exposed without being covered by the reflective electrode, which is different from the first tone.

14. (Previously Presented) A method for fabricating a reflective-transmissive type liquid crystal display device, the method comprising:

forming a thin film transistor on a first transparent substrate;
depositing an organic insulation layer on the first transparent substrate to insulate the thin film transistor, the organic insulation layer having a contact hole for exposing an output terminal of the thin film transistor;

forming a pixel electrode on the organic insulation layer, the pixel electrode having a transparent electrode connected to the output terminal of the thin film transistor through the contact hole and a reflective electrode formed on a first region of the transparent electrode, a second region of the transparent electrode being exposed without covering by the reflective electrode, the second region including a first boundary and a second boundary wherein the first

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boundary is a boundary between the first and second regions and the second boundary is a remaining boundary of the second region except for the first boundary;

coating an orientation film on an upper surface of the pixel electrode;

rubbing the orientation film in a first direction toward the second boundary to form an orientation groove on the orientation film, rubbing the orientation film in the first direction preventing impurity from being stacked at the first boundary of the transparent electrode;

forming a color filter on a second transparent substrate in opposition to the pixel electrode;

forming a common electrode on an upper surface of the color filter, the common electrode facing the pixel electrode; and

interposing a liquid crystal between the common electrode and the pixel electrode on which the orientation film and the orientation groove are formed.

15. (Previously Presented) The method as claimed in claim 14, wherein forming a pixel electrode comprises:

forming the transparent electrode on the first transparent substrate on which the thin film transistor and the organic insulation layer are formed;

forming a metal thin film on an upper surface of the transparent electrode; and

patterning the metal thin film such that the reflective electrode is formed on the first region of the transparent electrode and the first boundary has a linear shape in a layout of the pixel electrode.

16. (Previously Presented) The method as claimed in claim 15, wherein patterning the metal thin film includes forming a sidewall of the reflective electrode at the first region adjacent to the first boundary, the sidewall slanting to prevent the impurity from being stacked at the sidewall of the reflective electrode.

17. (Original) The method as claimed in claim 14, wherein forming a pixel electrode comprises:

forming the transparent electrode on the first transparent substrate on which the thin film

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transistor and the organic insulation layer are formed;

forming a metal thin film on an upper surface of the transparent electrode; and

patternning the metal thin film such that the reflective electrode is formed on the first region of the transparent electrode and the second region exposes two edges of the transparent electrode, the two edges being connected to each other.

18. (Previously Presented) The method as claimed in claim 17, wherein patternning the metal thin film includes forming a sidewall of the reflective electrode at the first region adjacent to the first boundary, the sidewall slanting so as to prevent the impurity from being stacked at the sidewall of the reflective electrode.

19. (Withdrawn) The method as claimed in claim 14, wherein forming a pixel electrode comprises:

forming the transparent electrode on the first transparent substrate on which the thin film transistor and the organic insulation layer are formed;

forming a metal thin film on an upper surface of the transparent electrode; and
patternning the metal thin film such that the reflective electrode is formed on the first region of the transparent electrode and the second region exposes one edge of the transparent electrode.

20. (Withdrawn) The method as claimed in claim 19, wherein patternning the metal thin film includes forming a sidewall of the reflective electrode at the first region adjacent to the boundary, the sidewall slanting so as to prevent the impurity from being stacked at the sidewall of the reflective electrode.

21. (Withdrawn) The method as claimed in claim 14, wherein forming a pixel electrode comprises:

forming the transparent electrode on the first transparent substrate such that the second region is formed on an inside of the first region;

forming a metal thin film on an upper surface of the transparent electrode; and
patternning the metal thin film such that the reflective electrode is formed on the first region of the

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transparent electrode, and a sidewall of the reflective electrode is slantingly formed at the first region adjacent to the boundary so as to prevent the impurity from being stacked at the sidewall of the reflective electrode.

22. (Withdrawn) The method as claimed in claim 21, wherein the transparent electrode includes a plurality of the second regions.

23. (Withdrawn) The method as claimed in claim 21, wherein the second regions include a circular shape or a rectangular shape.

24. (Canceled)